

NON-PUBLIC?: N  
ACCESSION #: 9111250263  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: South Texas, Unit 1 PAGE: 1 OF 04

DOCKET NUMBER: 05000498

TITLE: Reactor Trip Due to Personnel Error Inadvertently Tripping the  
Feeder Breaker to Auxiliary Bus "1J"  
EVENT DATE: 10/10/91 LER #: 91-021-00 REPORT DATE: 11/08/91

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Charles Ayala - Supervising TELEPHONE: (512) 972-8628  
Licensing Engineer

COMPONENT FAILURE DESCRIPTION:  
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:  
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

#### ABSTRACT:

On October 10, 1991, at 2056, Unit 1 was in Mode 1 at 100% power when power from the 1J Bus was lost. During the performance of work activities, a Maintenance Electrician misapplied multimeter test leads in an energized circuit with the multimeter set to read "RESISTANCE". The misapplied test leads energized relay 2A which actuated the 86X lockout relay causing breaker P150 to trip and de-energize the 1J Bus. Upon loss of power on 1J Bus, Reactor Coolant Pump (RCP) 1D tripped and caused a reactor trip due to low coolant flow. The bus was re-energized at 2059 from the Unit Auxiliary Transformer with no further incidents. The primary cause of this event was personnel error. The Maintenance Electrician's attention to detail during work performance, elementary drawing reading and troubleshooting techniques were less than adequate. A training session is being held for appropriate Plant Personnel stressing the application of Self Verification during work performance.

A testing program will be implemented to ensure that applicable personnel are qualified to use elementary drawings to aid in performance of maintenance activities.

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END OF ABSTRACT

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#### DESCRIPTION OF EVENT:

On October 10, 1991, at 2056, Unit 1 was in Mode 1 at 100% power when power from the 1J Bus was lost. Upon loss of power on 1J Bus, Reactor Coolant Pump (RCP) 1D tripped and caused a reactor trip due to low coolant flow. The (on safety-related) Technical Support Center (TSC), Balance of Plant (BOP), and Lighting diesel generators started and sequenced, as expected, to their respective busses. Additionally, all three Fire Pumps started and the Auxiliary Feedwater (AFW) system started as designed.

The loss of power to 1J Bus resulted from a Maintenance Electrician inadvertently tripping the 13.8 kV 1J Bus Feeder Breaker from the Unit Auxiliary Transformer. The individual was performing corrective maintenance to investigate the cause of a broken indicator light in Cubicle 2 of the Bus 1J 13.8kV Switchgear. In the control room pre-job briefing the Maintenance Electrician informed the Shift Supervisor that he was going to perform a visual inspection. The Shift Supervisor was not aware that the Maintenance Electrician considered using a multimeter as part of visual inspection. During the performance of work activities, the Maintenance Electrician misapplied multimeter test leads in an energized circuit with the multimeter set to read "RESISTANCE". When a multimeter is set to read "RESISTANCE" it acts, electrically, as a closed contact. The Maintenance Electrician attempted to perform a continuity check between the #2 contact on the light and the #6 contact on the 52a relay but mistakenly touched the #2 contact on the 52a relay. The misapplied test leads energized relay 2A which actuated the 86X lockout relay causing breaker P150 to trip and de-energize 1J Bus. This sequence was the designed response. Upon realizing the bus had tripped, the Maintenance Electrician notified the Unit 1 Shift Supervisor and his Foreman.

The bus was re-energized at 2059 from the Unit Auxiliary Transformer with no further incidents. The AFW system and all Fire Pumps and the BOP, TSC and Lighting diesel generators were secured and reset to normal

configurations.

Upon further review of the Elementary Wiring Diagrams it was found that the Maintenance Electrician should not have been troubleshooting across the 52a relay, but the 52b relay inside the breaker. The Maintenance Electrician had not received formal training on how to read Elementary Wiring Diagrams.

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#### CAUSE OF EVENT:

The primary cause of this event was personnel error. The Maintenance Electrician's attention to detail during work performance, elementary drawing reading, and troubleshooting techniques were less than adequate. Also, the Maintenance Electrician's interpretation of visual inspection was different than that of the Shift Supervisor, resulting in inadequate communication of the work to be performed. A contributing cause was that the Work Package preparation and review was inadequate in identifying the potential for bus de-energization and the resulting consequences.

#### ANALYSIS OF EVENT:

Loss of power to the 1J Bus caused Reactor Coolant Pump 1D to trip, and subsequently the Unit 1 Reactor to trip. Unplanned actuation of the Reactor Protection System is reportable pursuant to 10CFR50.73(a)(2)(iv). This event did not result in any increased risk to the safe operation of the plant. All safety systems functioned as required.

#### CORRECTIVE ACTIONS:

1. Site-wide training sessions are being held for appropriate plant personnel stressing the application of self verification during work performance. To date, the majority of appropriate plant personnel have attended one of these sessions. The remainder of these training sessions will be completed by November 22, 1991.
2. The Maintenance Electrician involved with this incident has been counselled.
3. A testing program will be implemented to ensure that personnel, as applicable, are qualified to use elementary drawings to aid in performance of maintenance activities. This program will be implemented by December 31, 1991.

4. Caution stickers will be placed on multimeters stating that the resistance reading position is not to be used when working on energized equipment. This will be completed by April 1, 1992.

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CORRECTIVE ACTIONS: (Cont'd)

5. The Work Planning Procedure will be revised to implement the following:

- a. Clearly identify that corrective maintenance or troubleshooting activities on energized electrical busses or switchgear shall receive an Independent Technical Review prior to work start.
- b. Independent Technical Reviewer shall ensure pertinent drawings and information regarding system configuration and vulnerability to cause a LOOP, Turbine Trip, Reactor Trip, or ESF Actuation are included in the work package.
- c. A statement will be added to clearly define the term "visual inspection."

This revision will be completed by December 3, 1991.

6. Previously prepared corrective maintenance packages have been reviewed to ensure that, as applicable, independent technical review will be obtained prior to work start.

7. A "CAUTION" step will be added to corrective maintenance packages that pertain to energized electrical equipment which could potentially cause a LOOP, Turbine Trip, Reactor Trip, or ESF Actuation. This will be implemented by December 3, 1991.

8. The Work Implementation procedure will be revised to clearly define the term "visual inspection." This will be completed by December 3, 1991.

ADDITIONAL INFORMATION:

A similar event regarding a reactor trip occurred to Unit 2 and was reported as LER 90-014, "Inadvertent Engineered Safety Features Actuation Due to Improper Use of Test Equipment."

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ATTACHMENT 1 TO 9111250263 PAGE 1 OF 2

The Light  
company South Texas Project Electric Generating Station  
P. O. Box 289 Wadsworth, Texas 77483  
Houston Lighting & Power

November 8, 1991  
ST-HL-AE-3918  
File No.: G26  
10CFR50.73

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

South Texas Project Electric Generating Station  
Unit 1  
Docket No. STN 50-498  
Licensee Event Report 91-021 Regarding a  
Reactor Trip Due to Personnel Error Inadvertently  
Tripping the Feeder Breaker to Auxiliary Bus "1J"

Pursuant to 10CFR50.73, Houston Lighting & Power Company (HL&P)  
submits the attached Licensee Event Report (LER 91-021) regarding a  
reactor trip due to personnel error inadvertently tripping the feeder  
breaker to Auxiliary Bus "1J". This event did not have any adverse  
impact on the health and safety of the public.

If you should have any questions on this matter, please contact Mr.  
C. A. Ayala at (512) 972-8628 or myself at (512) 972-7205.

William J. Jump  
Manager,  
Nuclear Licensing

TJH/amp

Attachment: LER 91-021 (South Texas, Unit 1)

LER\91298001.U1 A Subsidiary of Houston Industries Incorporated

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File No.: G26

Houston Lighting & Power Company Page 2

South Texas Project Electric Generating Station

cc:

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Revised 10/11/91  
L4/NRC/

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